

Appl. No. 10/826,919  
Amdt. Dated March 3, 2010  
Reply to Office action of September 3, 2009

### REMARKS/ARGUMENTS

#### The Status of the Claims.

Claims 52 – 54, 56 – 59, 63, and 64 are pending with entry of this amendment, claim 62 is withdrawn. Claims 53, 58, 63, and 64 are amended herein. These amendments introduce no new matter and support is replete throughout the specification and claims as originally filed. These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter or agreement with any objection or rejection of record.

Amendments were made to claims 53 and 64 to clarify the language regarding conservative variants of amino acid sequences of the claimed orthogonal aminoacyl tRNA synthetases. Support for these amendments can be found throughout the specification, e.g., at paragraphs 0011, 0012, 0112, and 0113, and in original claim 42, which describe embodiments of amino acid sequences of orthogonal aminoacyl tRNA synthetases of the invention. Amendments were also made to claims 58 and 63 to correct minor punctuation errors.

Applicants submit that no new matter has been added to the application by way of the above Amendment. Accordingly, entry of the Amendment is respectfully requested.

#### Compliance with the Sequence Listing Rules.

Applicants have provided a substitute copy of the sequence listing on CD in triplicate; an amendment directing its entry into the specification; and a statement that the content of the paper and CRF copies are the same and include no new matter as required by 37 C.F.R. §1.821 (e) or 1.821(f) or 1.821(g) or 1.821(b) or 1.821(d). The CD labeled Copy 1, which is considered the "paper copy", is identical to the computer readable form copy on the CD labeled "Copy 3".

The substitute copy of the sequence listing includes SEQ ID NO: 105, i.e., an artificial amino acid sequence encoding an artificial aminoacyl tRNA synthetase having amino acid substitutions at any two or more of the following positions: 37, 126, 182, 183, and 186. The entry of SEQ ID NO: 105 into the sequence listing does not introduce any new matter. Support for SEQ ID NO: 105 can be found throughout the specification, e.g., at paragraphs 0011, 0012, 0112, and 0113, which describe embodiments of amino acid sequences of orthogonal aminoacyl tRNA synthetases of the invention.

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**35 U.S.C. §112, First Paragraph – The Written Description is Adequate.**

Claims 53 – 54, 56 – 59, and 63 – 64 were rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed. Specifically, the Examiner alleged that the written description is inadequate with regard to orthogonal aminoacyl tRNA synthetases comprising conservative amino acid substitutions. Without acquiescing to the rejection, Applicants herein amend independent claims 53 and 64 to specify that the conservative variants of SEQ ID NOs: 48 – 53 are 98% identical to SEQ ID NOs: 48 – 53; and that the conservative variants of SEQ ID NO: 2 are 98% identical to SEQ ID NO: 2 and comprise at least 2 specified amino acids.

Applicants respectfully note that the orthogonal aminoacyl tRNA synthetases of claims 53 and 64 are each circumscribed by a sequence limitation (e.g., SEQ ID NOs: 48 – 53, conservative variants of SEQ ID NOs: 48 – 53 that are at least 98% identical to SEQ ID NOs: 48 – 53, conservative variants of SEQ ID NO: 2 that are at least 98% identical to SEQ ID NO: 2 and comprise two or more specified amino acids); a structural limitation (e.g., the at least two specified amino acids); and a functional requirement (e.g., the ability to aminoacylate the O-tRNA with *p*-azido-L-phenylalanine).

The specific amino acid substitutions that correspond to amino acid positions 37, 126, 182, 183, and 186 of *E. coli* TyrRS (see, e.g., Tables 4, 6, and 8; paragraph 0324; and Example 6); the guidance in the specification regarding methods of producing an O-RS that aminoacylates a cognate O-tRNA with *p*-azido-L-phenylalanine (see, e.g., paragraphs 0117 - 0132); the guidance in the specification regarding conservative amino acid substitutions (see, e.g., paragraphs 0253 - 0255); and the functional requirement for the O-RS (e.g., as specified in claims 53 and 64) provide adequate written description that shows that Applicants had possession of the invention at the time the application was filed.

Furthermore, as provided in the M.P.E.P., description of only one species can adequately support a claim to a genus. M.P.E.P. § 2163. Therefore, Applicants do not have to disclose every single O-RS that is a conservative variant that is at least 98% identical to an amino acid sequence of SEQ ID NOs: 48 – 53 or 98% identical to SEQ ID NO: 2 and also comprises two or more specified amino acids. The working examples provide more than enough species to support the genus and the guidance provided by the specification shows that Applicant was in possession of the entire scope of

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the claimed invention. The written description is adequate to show possession of the claimed invention and Applicants therefore respectfully request that the rejections be withdrawn.

Claim 63 was included in the § 112 rejection regarding orthogonal aminoacyl tRNA synthetases comprising conservative amino acid substitutions, despite the fact that the claim does not contain any such language. Applicants are therefore unclear as to why claim 63 stands rejected and respectfully request clarification.

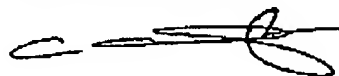
### CONCLUSION

In view of the foregoing, Applicants believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the claims are deemed not to be in condition for allowance after consideration of this Response, a telephone interview with the Examiner is hereby requested. Please telephone the undersigned at (510) 337-7871 to schedule an interview.

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Respectfully submitted,



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#### Attachments:

- 1) A transmittal sheet;
- 2) A fee transmittal sheet;
- 3) A petition to extend the period of response for 3 months;
- 4) RCE Transmittal;
- 5) Sequence Listing Statement;
- 6) Sequence Listing on CD (In triplicate); and,
- 7) A receipt indication postcard.